

Middle School Technology Education

Course Code: 21050

Rationale Statement:

Middle School Technology Education is a significant part of society. Most careers call for some type of technology skills. Technology education brings deeper meaning to core content concepts while introducing students to various technologies, technical skills, critical thinking processes, and hands-on experiences. Students will become problem solvers and creative thinkers who are more prepared to enter secondary education ready to make informed choices about future career possibilities.

Suggested Grade Level: 6-8

Topics Covered:

- nature of technology
- technology & society
- design process
- energy & power
- transportation
- manufacturing & construction
- communications technologies

Core Technical Standards & Examples

Indicator #1: Understand the scope and nature of technology	
Bloom's Taxonomy Level	Standard and Examples
Understanding	TEMS.1.1 Identify the core concepts and characteristics of technology Examples: <ul style="list-style-type: none"> • Define technology and provide examples • List characteristics describing technology • Cite examples of the characteristics of technology in daily life
Understanding	TEMS.1.2 Understand the core relationships between technology and other areas of study Examples: <ul style="list-style-type: none"> • Identify technological systems that interconnect • List products or systems that have been applied to other settings • Give examples of how transferred knowledge impacted the development of other technologies

Indicator #2: Analyze the affect of technology on society and the environment	
Bloom's Taxonomy Level	Standard and Examples
Analyzing	<p>TEMS.2.1 Analyze the effects of technology on the environment</p> <p>Examples:</p> <ul style="list-style-type: none"> • Describe how and why the management of wastes produced by the use of technology is an important issue in society • Compare and contrast renewable and alternative energy resources • Explain how technologies can be used to repair damage caused by natural disasters
Analyzing	<p>TEMS.2.2 Examine the relationship among the cultural, social, economic, and political effects of technology</p> <p>Examples:</p> <ul style="list-style-type: none"> • Describe how new technologies have resulted from the demands of society • Analyze how society responds to the use of new technologies • Research a law that was proposed based on a technological advancement
Analyzing	<p>TEMS.2.3 Examine how technology has influenced history</p> <p>Examples:</p> <ul style="list-style-type: none"> • Identify inventors and research new technologies of different time periods • Diagram the time line of the development of a technology and link to other historical events • Trace and invention from the inventor to current applications, identifying the reasons for changes to the product or system

Indicator #3: Apply problem-solving strategies demonstrating use of the design process	
Bloom's Taxonomy Level	Standard and Examples
Understanding	<p>TEMS.3.1 Understand the components of the design process</p> <p>Examples:</p> <ul style="list-style-type: none"> • Describe how design is a planning process that leads to useful products and systems • Design, construct, and assess the effectiveness of a wheeled vehicle • Review existing products and suggest ways to improve upon the design
Applying	<p>TEMS.3.2 Apply the engineering design process</p> <p>Examples:</p> <ul style="list-style-type: none"> • Produce an original design that meets a set of specifications • Build a prototype of a simple technological design • Gather, organize, and calculate performance data relating to a simple technological product
Applying	<p>TEMS.3.3 Apply the design process</p> <p>Examples:</p> <ul style="list-style-type: none"> • Refine a design by using modeling and prototypes to improve quality, efficiency, and productivity of the final product • Analyze criteria and constraints and determine how these will affect the design process • Identify a solution to a design problem

Indicator #4: Understand technology	
Bloom's Taxonomy Level	Standard and Examples
Understanding	<p>TEMS.4.1 Understand agricultural and related biotechnology</p> <p>Examples:</p> <ul style="list-style-type: none"> • Identify how agriculture is being used in medicine and other fields • Construct a model to show how run-off or natural disasters affect the land • Research current trends in biotechnology and make recommendations on appropriate use of technology
Understanding	<p>TEMS.4.2 Understand energy and power technology</p> <p>Examples:</p> <ul style="list-style-type: none"> • Identify types of simple machines and how they affect force on an object • Explain the Law of Conservation of Energy • Identify the use of alternative energy sources locally
Understanding	<p>TEMS.4.3 Understand information and communication technology</p> <p>Examples:</p> <ul style="list-style-type: none"> • Record a broadcast to inform or educate others • Create a web page for publication • Create an animation project

Understanding	<p>TEMS.4.4 Understand transportation technology</p> <p>Examples:</p> <ul style="list-style-type: none"> • Identify on a map the major transportation routes in the local community • Explain the different types of transportation needed to move a product from the manufacturer to the consumer • Create a student traffic pattern to improve safety of student traffic in the halls of the middle school
Understanding	<p>TEMS.4.5 Understand manufacturing technology</p> <p>Examples:</p> <ul style="list-style-type: none"> • Outline the various types of manufacturing, explaining the importance of each • Set up a simple assembly line to produce a product • Create a simple product out of household materials
Understanding	<p>TEMS.4.6 Understand construction technology</p> <p>Examples:</p> <ul style="list-style-type: none"> • Identify hand tools by name and give uses for each • Identify and explain safety requirements of various tools used in construction • Use hand tools to assemble a household object